

HR-191 ABSTRACT

A research project involving two, three, four and five inches of bonded Portland Cement Concrete (PCC) overlay on a 1.3 mile PCC pavement was conducted in Clayton County, Iowa, during September, 1977. This research project had the following objectives:

1. Determine the mixing and proportioning procedures required in using a conventional, central mix proportioning plant to produce a dense PCC mixture using standard mixes with super-water-reducing admixtures.
2. Determine the economics, longevity and maintenance performance of a bonded, thin-lift, non-reinforced PCC resurfacing course using conventional procedures, equipment and concrete paving mixtures both with and without super-water-reducing admixtures;
3. Determine if an adequate bond between the existing pavement and an overlay of thin-lift, dense, non-reinforced PCC can be obtained with only special surface cleaning and no surface removal or grinding.

Conclusions:

1. Normal mixing equipment and proportioning procedures could be used using a conventional central-mix proportioning plant. This was successful when used with super-water-reducing admixtures. Only minor changes need to be made in procedures and timing.
2. The time has been too short since the completion of the project to determine how the new pavement will perform. However, initially it appears that the method is economical. And no reason is seen at this time why the life of the pavement should not be comparable to an all new pavement.
3. The initial test results show that bond strength, regardless of which method of cleaning is used (scarifying, sand blasting or water blasting), far exceed what is considered the minimum bond strength of 200 psi. This is not true where paint stripes were intentionally left in place, showing that the paint must be removed.
4. It appears that either cement and water grout or sand, cement and water grout may be used and still obtain the required bond.